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Fall 9-1-2018

# ECNS 403.01: Introduction to Econometrics

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Dalenberg, Douglas, "ECNS 403.01: Introduction to Econometrics" (2018). *Syllabi*. 8073.  
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**UNIVERSITY OF MONTANA**  
**ECNS 403: Introduction to Econometrics**

**Course Information:**

Semester: Fall 2018

Section: Section 01

Meeting time: MWF 2:00-2:50, W 11:00-11:50

Classroom: JRH 202 for MWF 2:00-2:50, FA 210 for W 11:00-11:50

Credits: 4 credits

CRN: 70048

**Instructor Information:**

Instructor: Douglas Dalenberg

Office: LA 413

Email: [doug.dalenberg@mso.umt.edu](mailto:doug.dalenberg@mso.umt.edu)

Phone: 406-243-4406 (message only – email will get a faster response).

Office hours: MWF 1:00-1:50, F 10:00-10:50 or by appointment.

**Course Description:**

This course is designed to develop undergraduate-level competency in econometric analysis with emphasis on interpretation and testing. Statistical software will be used to assist the student in handling of complex empirical problems and to demonstrate the use of statistical software in business and research environments. The ultimate objective of the course is to familiarize the student with the regression technique used in economics but also found in business, forestry, and other social sciences. I aim to help students develop a strong foundation for more advanced applications of econometrics in the future. This is an applied rather than theoretical econometrics course.

**Prerequisites:**

The prerequisite is an introductory statistics course.

**Optional Text:**

Gujarati, Damodar, *Econometrics by Example*, New York, NY: Palgrave Macmillan, 1<sup>st</sup> edition, 2011.

**Optional Software:**

*Stata*. We will use Stata in the lab and I will pass out instructions on how to purchase Stata for home use, however, you do not need to purchase Stata since it is available in FA 210 and in LA 401.

**Optional Hardware:**

You may want a USB stick to save your lab work. However, many students use e-mail or Box to save their work.

**Course Moodle Page:**

The course Moodle page will contain the data sets we use in the lab.

## Learning Outcomes:

Students who successfully complete this course will be able to:

1. interpret regression results; this includes interpreting coefficient estimates and the related measures of fit.
2. explain the standard ordinary least squares assumptions and the consequences, detection, and potential corrections for violations of the standard assumptions.
3. perform and interpret the relevant hypothesis tests associated with the regression coefficients, model, fit, and violations of the ordinary least squares assumptions.
4. explain how to distinguish between practical and statistical significance.
5. demonstrate proficiency with a statistical software program.
6. identify situations in which methods such as logit or two-stage least squares are called for.

## Assessment:

You will be assessed with regular short homework assignments, two exams, and a comprehensive final exam. Your homework score will account for 25% of your grade, each exam for 20% and your final exam will account for 35% of your grade.

Assignment	Percent	Date
Homework	25%	Throughout the term, almost every meeting
Exam 1	20%	Wednesday, October 10
Exam 2	20%	Friday, November 9
Comprehensive Final Exam	35%	Tuesday, December 11, 1:10-3:10

I will use plus/minus grading with 100-92=A, 91-90=A-, 89-88=B+, 87-82=B, 81-80=B-, 79-78=C+, 77-72=C, 71-70=C-, 69-68=D+, 67-62=D, 61-60=D-, 59 and below=F.

## Graduate Increment:

Students taking this course for graduate credit are required to complete a graduate increment. I will pass out a separate graduate increment assignment. The graduate increment does not change your grade but must be completed in order to earn a grade in this class.

## Policies:

1. If you miss an exam and you contact me prior to or immediately after the exam, then we will schedule a make-up exam. If I am not contacted promptly, then no makeup is possible and you will get a zero score. I will not drop any exam scores, so you must do a make-up exam.
2. Late homework is penalized with a deduction of points reflecting the cost it imposes on me or the TA to grade it. Homework is considered late if the TA or I receive it after we have finished grading those assignments handed in on time.
3. If my office hours conflict with your schedule, see me for an appointment.
4. Although I do not take attendance, attending class regularly is important. I test more out of the class lectures than the readings.
5. Whenever possible, and in accordance with civil rights laws, the University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the [Disability Services for Students](https://www.umt.edu/dss/) website (<https://www.umt.edu/dss/>).

6. Academic dishonesty will result in a score of zero for the work in question and possible university sanctions. All students need to be familiar with the [Student Conduct Code](http://www.umd.edu/student-affairs/dean-of-students/default.php) (<http://www.umd.edu/student-affairs/dean-of-students/default.php>).
7. The University sets deadlines for adding classes, dropping classes, changing grade options, and changing to or from audit status. These policies can be found at the [Registrar's web page](http://www.umd.edu/registrar/students/dropadd.php) (<http://www.umd.edu/registrar/students/dropadd.php>) while the actual dates for this term can be found on the [Registrar's calendar](http://www.umd.edu/registrar/calendar.php) (<http://www.umd.edu/registrar/calendar.php>).
8. University policy states "For undergraduates, a CR grade (credit) will be equivalent to a D- or better and an NCR grade (no credit) will be equivalent to an F." University rules require you to earn a grade of C- or better in order for the course to satisfy the requirements of a major.
9. As a courtesy to your classmates, please set your cell phones on vibrate rather than ring and please leave the classroom to talk on a phone. You may text during class if it does not disturb those sitting near you and it does not disturb me. Absolutely no texting or cell phone use during exams. If you believe that you will need to leave during class, please sit where you will not disturb others as you leave.
10. I do not recommend taking notes for this class on your computer. The number of graphs and equations makes it difficult. The research I have read indicates that hand written notes are better for recall. If you are going to take notes on your computer, please sit where you will not distract the people around you.
11. A classroom is a community, so I trust you will act as a mature and responsible citizen and treat each other with respect and courtesy. Please do not interfere with the learning of your classmates. I will ask you to leave if you are interfering with others' learning and it would be very embarrassing for you.
12. I encourage you to help each other in the labs; one of the best ways to learn something is to teach it.

### Calendar:

This schedule of topics is subject to modification. All changes will be announced in class.

Week	Date	Topic	Labs	Assignments
1	8/27 8/29 8/31	Introduction and Terminology	Lab 1	Hmk 1 due Hmk 2 due
2	9/3 9/5 9/7	<i>Monday is a Holiday.</i> Ordinary Least Squares	Lab 2	Hmk 3 due Hmk 4 due
3	9/10 9/12 9/14	Testing	Lab 3	Hmk 5 due Hmk 6 due Hmk 7 due
4	9/17 9/19 9/21	More Testing	Lab 4	Hmk 8 due Hmk 9 due Hmk 10 due
5	9/24 9/26 9/28	Functional Form	Lab 5	Hmk 11 due Hmk 12 due Hmk 13 due

Week	Date	Topic	Labs	Assignments
6	10/1 10/3 10/5	Dummy Variables	Lab 6	Hmk 14 due Hmk 15 due Hmk 16 due
7	10/8 10/10 10/12	More Dummy Variables Exam 1	Lab 7 - Review	Exam 1
8	10/15 10/17 10/19	Multicollinearity	Lab 8	Hmk 17 due Hmk 18 due
9	10/22 10/24 10/26	Heteroskedasticity	Lab 9	Hmk 19 due Hmk 20 due Hmk 21 due
10	10/29 10/31 11/2	Serial Correlation  Specification Error	Lab 10	Hmk 21 due Hmk 22 due Hmk 23 due
11	11/5 11/7 11/9	Specification Error  Exam 2	Lab 11	Hmk 24 due  Exam 2
12	11/12 11/14 11/16	<i>Monday is a holiday</i> Introduction to Logit and Probit	Lab 12	  Hmk 25 due
13	11/19 11/21 11/23	Causality <i>Wednesday is a Travel Day.</i> <i>Friday is a Holiday.</i>		Hmk 26 due
14	11/26 11/28 11/30	Panel Data	Lab 13	Hmk 27 due Hmk 28 due
15	12/3 12/5 12/7	Introduction to Endogeneity	Lab 14	Hmk 29 due Hmk 30 due
16	12/10	FINAL EXAM - Tuesday, December 11, 1:10-3:10 pm		Final Exam